

Compressed Gas Cylinder Handling/Storage
ACTIVITY HAZARDS ANALYSIS
Hydrologic Engineering Branch

ACTIVITY: Compressed Gas Cylinder Handling/Storage

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PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
General Operation – Storage, Handling operation, Transportation	Death, Bodily Injury	<p>Storage</p> <ol style="list-style-type: none"> 1. Cylinders shall be stored in well-ventilated locations 2. Cylinders containing the same gas shall be stored in a segregated group; empty cylinders shall be stored in the same manner 3. Cylinders in storage shall be separated from flammable or combustible liquids and from easily ignitable materials (such as wood, paper, packaging materials, oil, and grease) by at least 40 ft or by fire resistive partition having at least a 1 hour rating 4. Cylinders containing oxygen or oxidizing gases shall be separated from cylinders in storage containing fuel gases by at least 20 ft or a fire resistive partition, having at least a 1 hour rating 5. Areas containing hazardous gas in storage shall be appropriately placarded 6. Smoking shall be prohibited wherever cylinders are stored, handled, or used 7. Cylinders shall be protected from physical damage, electric current, and extremes of temperature: the temperature of cylinders shall not be allowed to exceed 130° F 8. Cylinders containing oxygen and acetylene (or other fuel gas) shall not be taken into confined spaces 9. Cylinder valves and valve caps <ol style="list-style-type: none"> a. Cylinder valves shall be closed when cylinders are in storage, in transit, not in use, or empty b. Cylinder valve caps shall be in place when cylinders are in storage, in transit, or whenever the regulator is not in place 10. All compressed gas cylinders in service shall be secured in substantial fixed portable racks or hand trucks 11. Compressed gas cylinders transported by crane, hoist, or derrick shall be securely transported in cradles, nets, or skip pans, and never directly by slings, chains or magnets 12. Compressed gas cylinders shall be secured in an upright position at all times, except when being hoisted (except acetylene cylinders shall never be laid horizontal): horizontal storage configurations approved for transportation are permitted for cylinders other than acetylene 13. Valve wrench or wheel shall be in operating position when cylinder is in use

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		<ul style="list-style-type: none"> a. Valves shall be opened slowly b. Quick closing valves on fuel gas cylinders shall not be opened more than 1-1½ turns <ul style="list-style-type: none"> 14. Cylinders shall be used only for their designed purpose of containing a specific compressed gas 15. Cylinders shall be refilled only by qualified persons 16. Cylinders shall be handled in a manner which will not weaken or damage the cylinder or valve 17. Leaking cylinders shall be moved to an isolated location out of doors, the valve shall be cracked and gas allowed to escape slowly <ul style="list-style-type: none"> a. Personnel and all sources of ignition shall be kept away b. The cylinder shall be tagged DEFECTIVE 18. Cylinders containing different gases shall not be bled simultaneously in close proximity of each other 19. Bleeding of cylinders containing toxic gases shall be accomplished only under the direct supervision of qualified personnel 20. Oxygen cylinders and fittings shall be kept away from oil or grease <ul style="list-style-type: none"> a. Cylinders, cylinder valve, couplings, regulators, hose, and apparatus shall be kept free from oil or greasy substance and shall not be handled with oily hands or gloves b. Oxygen shall not be directed at oil surfaces, greasy cloths, or within a fuel oil or other storage tank or vessel 21. Oxygen and fuel gas pressure regulators, including their related gauges, shall be in proper working order while in use
EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
<ul style="list-style-type: none"> 1. Nitrogen Tank 2. Oxygen Tank 3. Acetylene Tank 	<ul style="list-style-type: none"> 1. Compressed gas cylinders shall be visually inspected in accordance with 49 CFR Parts 171-179 and the Compressed Gas Association Pamphlets C-6 & C-8 2. All Government owned cylinders shall be color coded and the gas contained identified by name in accordance with Mil-Std 101B, Color Code for Compressed Gas Cylinders 3. Tanks are inspected every 5 to 10 years depending on the tank. If inspected every 5 years the tank will only have the month and year inspected and tested. Ten-year tanks have a star after the month and year inspected and tested. 	Compressed gas cylinder handling.